

Substitute for form 1449A-B/PTO  INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (use as many sheets as necessary)	Complete if Known	
	Application Number	09/494,282
	Filing Date	January 18, 2000
	First Named Inventor	Sergey A. Selifonov
	Group Art Unit	Unassigned
	Examiner Name	Unassigned
Attorney Docket Number		02-028930US

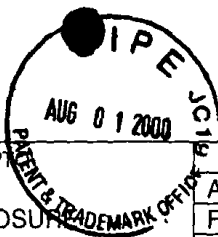
U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T
AA		DAHIYAT et al., "Automated design of the surface positions of protein helices" <i>Protein Science</i> (1997) 6:1333-1337			
AB		DAHIYAT and MAYO "De Novo Protein Design: Fully Automated Sequence Selection" <i>Science</i> (1997) vol. 278 pp. 82-87			
AC		DAHIYAT et al., "De Novo Protein Design: Towards Fully Automated Sequence Selection" <i>J. Mol. Biol.</i> (1997) 273:789-796			
AD		DAHIYAT and MAYO "Probing the role of packing specificity in protein design" <i>Proc. Natl. Acad. Sci. U.S.A.</i> vol. 94 pp. 10172-10177			
AE		GORDON and MAYO "Branch-and-Terminate: a combinatorial optimization algorithm for protein design" <i>Structure</i> (1999) 7:1089-1098			
AF		GORDON et al., "Energy functions for protein design" <i>Current Opinion in Structural Biology</i> (1999) 9:509-513			
AG		GORDON and MAYO "Radical Performance Enhancements for Combinatorial Optimization Algorithms Based on the Dead-End Elimination Theorem" <i>Journal of Computational Chemistry</i> , 1998 vol. 19, no. 13, 1505-1514			
AH		HANEY et al., "Structural Basis for Thermostability and Identification of Potential Active Site Residues for Adenylate Kinases From the Archaeal Genus <i>Methanococcus</i> " <i>Proteins</i> (1997) 28:117-130			
AI		MALAKAUSKAS and MAYO "Design, structure and stability of a hyperthermophilic protein variant" <i>Nature Structural Biology</i> (1998) vol. 5, no. 6, 470-475			
AJ		POLLOCK et al., "Coevolving Protein Residues: Maximum Likelihood Identification and Relationship to Structure" <i>J. Mol. Biol.</i> (1999) 287:187-198			
AK		STREET and MAYO "Computational protein design" <i>Structure</i> (1999) 7:R105-R109			

Examiner Signature		Date Considered	3/7/01
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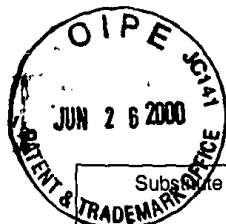
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	Group Art Unit	Unassigned
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AL	STREET and MAYO "Intrinsic B-sheet propensities result from van der Waals interactions between side chains and local backbone" <i>Proc. Natl. Acad. Sci. U.S.A.</i> (1999) vol. 96 pp. 9074-9076
AM	STREET and MAYO "Pairwise calculation of protein solvent-accessible surface areas" <i>Folding &amp; Design</i> (1998) 3:253-258
AN	STROP and MAYO "Rubredoxin Variant Folds without Iron" <i>J. American Chem. Soc.</i> (1999) vol. 121 no. 11 pp. 2341-2345
AO	WOLLENBERG and ATCHLEY "Separation of phylogenetic and functional associations in biological sequences by using the parametric bootstrap" <i>PNSA</i> vol. 97, no. 7, pp. 3288-3291

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Examiner Signature		Date Considered	3/6/01
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	Filing Date	<b>January 18, 2000</b>
	First Named Inventor	<b>S rgey A. Selifonov</b>
	Group Art Unit	<b>1635</b>
	Examiner Name	<b>Unassigned</b>
	Attorney Docket Number	<b>02-028930US</b>

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
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	AA	STEMMER et al., Single-step assembly of a gene and entire plasmid for large numbers of oligodeoxyribonucleotides <i>Gene</i> 164 (1995) 49-53	

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	Application Number	09/494,282
	Filing Date	January 18, 2000
	First Named Inventor	Sergey A. Selifonov
	Group Art Unit	1631
	Examiner Name	S. Zhou
	Attorney Docket Number	02-028930US

U.S. PATENT DOCUMENTS						
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		Number	Kind Code (if known)			
SA	AA	09/408,392		Crameri et al.	09-28-1999	
SA	AB	09/408,393		Welch et al.	09-28-1999	
SA	AC	09/416,375		Selifonov, et al.	10-12-1999	
SA	AD	09/484,850		Crameri, et al.	01-18-2000	
SA	AE	09/539,486		Selifonov et al.	03-30-2000	
SA	AF	09/618,579		Selifonov et al.	07-18-2000	
SA	AG	09/626,588		Crameri et al.	07-27-2000	
SA	AH	09/626,930		Crameri et al.	07-27-2000	
SA	AI	09/626,595		Crameri et al.	07-27-2000	
SA	AJ	09/626,929		Crameri et al.	07-27-2000	
SA	AK	09/626,601		Crameri et al.	07-27-2000	
SA	AL	09/694,863		Crameri et al.	10-23-2000	
SA	AM	09/694,864		Crameri et al.	10-23-2000	
SA	AN	09/721,601		Crameri et al.	11-21-2000	
SA	AO	09/721,396		Selifonov et al.	11-21-2000	
SA	AP	09/721,395		Selifonov et al.	11-21-2000	
SA	AQ	09/721,598		Selifonov et al.	11-21-2000	
SA	AR	09/718,765		Selifonov et al.	11-21-2000	
SA	AS	09/718,849		Selifonov et al.	11-21-2000	
SA	AT	09/718,682		Selifonov et al.	11-21-2000	
SA	AU	09/721,365		Selifonov et al.	11-21-2000	

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		Office	Number	Kind Code (if known)				
SA	AV	WO	00/42560		Maxygen Inc.	07-20-2000		
SA	AW	WO	00/42561		Maxygen, Inc.	07-20-2000		

Examiner Signature	<i>Shub Zhou</i>	Date Considered	03/07/01
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Application Number	09/416,375
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First Named Inventor	Sergey A. Selifonov
Group Art Unit	Unassigned
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Attorney Docket Number	02-028920US

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AA	AA	Crameri & Stemmer "1020-Fold aptamer library amplification without gel purification" <u>Nucleic Acid Research</u> (1993) Vol. 21 No. 18 p. 4110	
AB	AB	Feng & Doolittle, <i>J. Mol. Evol.</i> 35:351-360 (1987)	
AC	AC	Higgins & Sharp, <i>CABIOS</i> 5:151-153 (1989).	
AD	AD	Sun (1999) "Modeling DNA Shuffling" <u>Journal of Computational Biology</u> 6(1):77-90	

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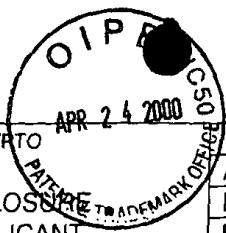
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		Number	Kind Code (if known)			
<i>Q</i>	AA	5,512,463		Stemmer	04-30-1996	435/91.2
<i>Q</i>	AB	5,514,588		Varadaraj	05-07-1996	435/262
<i>Q</i>	AC	5,605,793		Stemmer	02-25-1997	435/6
<i>Q</i>	AD	5,763,239		Short et al.	06-09-1998	435/6
<i>Q</i>	AE	5,789,228		Lam et al.	08-04-1998	435/209
<i>Q</i>	AF	5,811,238		Stemmer et al.	09-22-1998	435/6
<i>Q</i>	AG	5,814,473		Warren et al.	09-29-1998	435/15
<i>Q</i>	AH	5,830,696		Short	11-03-1998	<del>435/6</del>
<i>Q</i>	AI	5,830,721		Stemmer et al.	11-03-1998	435/69.1
<i>Q</i>	AJ	5,834,252		Stemmer et al.	11-10-1998	435/489
<i>Q</i>	AK	5,837,458		Minushull et al.	11-17-1998	435/91.1
<i>Q</i>	AL	5,876,997		Kretz	03-02-1999	435/96
<i>Q</i>	AM	5,925,749		Mathur, et al.	07-20-1999	435/23.1
<i>Q</i>	AN	5,928,905		Stemmer, et al.	07-27-1999	435/23.1 91.1
<i>Q</i>	AO	5,939,250		Short, Jay M.	08-17-1999	<del>435/23.1</del> 435/4
<i>Q</i>	AP	5,939,300		Robertson, et al.	08-17-1999	435/192
<i>Q</i>	AQ	5,942,430		Robertson, et al.	08-24-1999	435/197
<i>Q</i>	AR	5,948,666		Callen, et al.	09-07-1999	435/194
<i>Q</i>	AS	5,958,672		Short, Jay M.	09-28-1999	435/27 4
<i>Q</i>	AT	5,958,751		Murphy, et al.	09-28-1999	435/208
<i>Q</i>	AU	5,962,258		Mathur, et al.	10-05-1999	435/69.1
<i>Q</i>	AV	5,962,283		Warren et al.	10-05-1999	435/128
<i>Q</i>	AW	5,965,408		Short, Jay M.	10-12-1999	435/252.3
<i>Q</i>	AX	5,985,646		Murphy, et al.	11-16-1999	435/252.3

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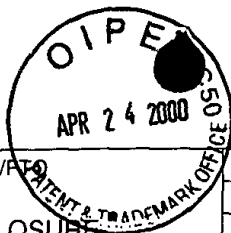


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	Examiner Name	Unassigned
	Attorney Docket Number	02-028920US

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		Office	Number	Kind Code (if known)				
82	AY	WO	97/07205		Novo Nordisk A/S	02-27-1997		
82	AZ	WO	97/20078		Affymax Technologies	06-05-1997		
82	BA	WO	97/25410		Novo Nordisk A/S	07-17-1997		
82	BB	WO	97/35957		Maxygen, Inc.	10-02-1997		
82	BC	WO	97/35966		Maxygen, Inc.	10-02-1997		
82	BD	WO	97/44361		Recombinant Biocatalysis Inc.	11-27-1997		
82	BE	WO	97/48416		Recombinant Biocatalysis, Inc.	12-24-1997		
82	BF	WO	97/48717		Recombinant Biocatalysis Inc	12-24-1997		
82	BG	WO	97/48794		Recombinant Biocatalysis Inc	12-24-1997		
82	BH	WO	98/00526		Recombinant Biocatalysis Inc	01-08-1998		
82	BI	WO	98/01581		Recombinant Biocatalysis Inc	01-15-1998		
82	BJ	WO	98/13485		Maxygen, Inc.	04-02-1998		
82	BK	WO	98/13487		Maxygen, Inc.	04-02-1998		
82	BL	WO	98/24799		Diversa Corp.	06-11-1998		
82	BM	WO	98/27230		Maxygen, Inc.	06-25-1998		
82	BN	WO	98/28416		Novo Nordisk A/S	07-02-1998		
82	BO	WO	98/31837		Maxygen, Inc.	07-23-1998		
82	BP	WO	98/36080		Maxygen, Inc.	08-20-1998		
82	BQ	WO	98/41622		Novo Nordisk A/S	09-24-1998		
82	BR	WO	98/41623		Novo Nordisk A/S	09-24-1998		
82	BS	WO	98/41653		Novo Nordisk A/S	09-24-1998		
82	BT	WO	98/42832		California Institute of	10-01-1998		

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					Technology			
ST	BU	WO	98/48034		Diversa Corp.	10-29-1998		
ST	BV	WO	98/58085		Diversa Corp.	12-23-1998		
ST	BW	WO	99/07837		Diversa Corp.	02-19-1999		
ST	BX	WO	99/08539		Diversa Corp.	02-25-1999		
ST	BY	WO	99/10472		Diversa Corp.	03-04-1999		
ST	BZ	WO	99/10539		Diversa Corp.	03-04-1999		
ST	CA	WO	99/19518		Diversa Corp.	04-22-1999		
ST	CB	EP	0911396A2		Maxygen, Inc.	04-28-1999		
ST	CC	WO	99/21979		Maxygen, Inc.	05-06-1999		
ST	CD	EP	0911396A3		Maxygen, Inc.	05-06-1999		
ST	CE	WO	99/23107		Maxygen, Inc.	05-14-1999		
ST	CF	WO	99/23236		Diversa Corp.	05-14-1999		
ST	CG	EP	0934999A1		Maxygen, Inc.	08-11-1999		
ST	CH	WO	99/41368		Maxygen, Inc.	08-19-1999		
ST	CI	WO	99/41369		Maxygen, Inc.	08-19-1999		
ST	CJ	WO	99/41383		Maxygen, Inc.	08-19-1999		
ST	CK	WO	99/41402		Maxygen, Inc.	08-19-1999		
ST	CL	WO	99/45154		Diversa Corp.	09-10-1999		
ST	CM	WO	99/57128		Maxygen, Inc.	11-11-1999		
ST	CN	WO	99/65927		Maxygen, Inc.	12-23-1999		

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82	AA	5,603,793	45/b	Yoshida et al.	02-18-1997	

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82	AB	WO	95/22625		Affymax Technologies, N.V.	08-24-1995		
82	AC	WO	96/33207		Glaxo Group Limited	10-24-1996		


OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
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82	AD	Altschul et al., <i>J. Mol. Biol.</i> 215:403-410 (1990)	
82	AE	Boehnke et al. (1991) "Statistical methods for multipoint radiation hybrid mapping" <i>Am. J. Hum. Genet.</i> 49:1174-1188	
82	AF	Brunner and Bujard (1987) <i>EMBO J.</i> 6:3139-3144	
82	AG	Chang et al. (1999) "Evolution of a cytokine using DNA family shuffling" <i>Nature Biotechnology</i> 17:793-797	
82	AH	Christians et al. (1999) "Directed evolution of thymidine kinase for AZT phosphorylation using DNA family shuffling" <i>Nature Biotechnology</i> 17:259-264	
82	AI	Crameri and Stemmer (1995) "Combinatorial multiple cassette mutagenesis creates all the permutations of mutant and wildtype cassettes" <i>BioTechniques</i> 18:194-195	
82	AJ	Crameri et al. (1996) "Construction and evolution of antibody-phage libraries by DNA shuffling" <i>Nature Medicine</i> 2:100-103	
82	AK	Crameri et al. (1996) "Improved green fluorescent protein by molecular evolution using DNA shuffling" <i>Nature Biotechnology</i> 14:315-319	
82	AL	Crameri et al. (1997) "Molecular evolution of an arsenate detoxification pathway by DNA shuffling," <i>Nature Biotechnology</i> 15:436-438;	
82	AM	Crameri et al. (1998) "DNA shuffling of a family of genes from diverse species accelerates directed evolution" <i>Nature</i> 391:288-291	
82	AN	Gates et al. (1996) "Affinity selective isolation of ligands from peptide libraries through display on a lac repressor 'headpiece dimer'" <i>Journal of Molecular Biology</i> 255:373-386	

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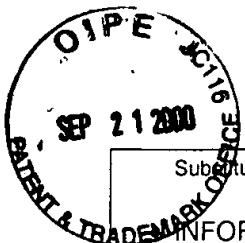
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AO	Irvine et al. (1991) "SELEXION: systematic evolution of ligands by exponential enrichment with integrated optimization by non-linear analysis" <u>J. Mol. Biol.</u> 222:739-761
AP	Jonsson et al. (1993) <u>Nucleic Acids Res.</u> 21:733-739
AQ	Kelly et al. (1994) "A test of the Markovian model of DNA evolution" <u>Biometrics</u> 50(3):653-64
AR	Knaus and Bujard (1988) <u>EMBO J.</u> 7:2919-2923
AS	Lander and Waterman (1988) Genomic mapping by fingerprinting random clones: a mathematical analysis" <u>Genomics</u> 2:231-239
AT	Lanzer and Bujard (1988) <u>Proc. Natl. Acad. Sci.</u> 85:8973-8977
AU	Minshull and Stemmer (1999) "Protein evolution by molecular breeding" <u>Current Opinion in Chemical Biology</u> 3:284-290
AV	Ness et al. (1999) "DNA Shuffling of subgenomic sequences of subtilisin" <u>Nature Biotechnology</u> 17:893-896
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BA	Stemmer (1996) "Sexual PCR and Assembly PCR" In: <u>The Encyclopedia of Molecular Biology</u> . VCH Publishers, New York. pp.447-457
BB	Stemmer, et al., (1999) "Molecular breeding of viruses for targeting and other clinical properties. Tumor Targeting" 4:1-4
BC	Sun and Waterman (1996) "A mathematical analysis of <i>in vitro</i> molecular selection-amplification" <u>J. Mol. Biol.</u> 258:650-660
BD	Zhang et al. (1997) "Directed evolution of an effective fucosidase from a galactosidase by DNA shuffling and screening" <u>Proceedings of the National Academy of Sciences, U.S.A.</u> 94:4504-4509

Examiner Signature		Date Considered	5/7/01
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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Substitute for form 1449A-B/PTO  INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (use as many sheets as necessary)	Complete if Known	
	Application Number	09/416,375
	Filing Date	October 12, 1999
	First Named Inventor	Sergey A. Selifonov
	Group Art Unit	Unassigned
	Examiner Name	Unassigned
Attorney Docket Number		02-028920US

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appear
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FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
A	AA	WO	95/15972		Thomas Jefferson University	06-15-1995		
A	AB	WO	98/49350		Regents of the University of Minnesota	11-05-1998		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T
A	AC	Giver and Arnold "Combinatorial protein design by in vitro recombination" <u>Current Opinion in Chemical Biology</u> (1998) 2:335-338		
A	AD	Sun, Fengzhu, "Modeling DNA Shuffling" <u>Proceedings of the Second Annual International Conference on Computational Molecular Biology</u> (1998) 251-257		
A	AE	Zhao et al., "Molecular evolution by staggered extention process (StEP) in vitro recombination" <u>Nature Biotechnology</u> Vol. 16 (1998) pp. 258-261		

Examiner Signature		Date Considered	03/06/01
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